

AMENDMENT TO THE DRAWINGS

Applicant submits herewith a copy of Figure 3 with proposed amendments in red. The numeral 70 is redirected to indicate the correct surface. Applicant also submits a replacement sheet incorporating the proposed amendments.

REMARKS

Claims 1-31 were filed with the application. Claims 1-26 and 30-31 are withdrawn, with continuing traverse, as being drawn to non-elected species. Claim 28 was canceled. Accordingly, claims 27 and 29 are pending in the application.

The Restriction Requirement Is Maintained

The examiner maintains the restriction requirement. As an initial matter, the examiner found Applicant's traversal argument to be non-persuasive, stating in particular that the Restriction Requirement did not refer to "conventional" rekeying operations. Applicant agrees that the Restriction Requirement did not explicitly refer to "conventional" rekeying operations. In the Restriction Requirement, the examiner asserted that the claimed lock can be rekeyed "by removing the cylinder and replacing components". However, that is precisely how conventional locks are rekeyed. That is, in conventional rekeying operations, one or more of the pins is replaced with a pin having a different length.

Replacing Components Will Not Rekey The Claimed Invention

Simply replacing components in the claimed lock with identical new components will not rekey the lock, it will only refurbish it. The claimed lock is rekeyed by unlocking the shear cylinders, thereby allowing them to move inside the lock cylinder to accommodate the different biting on a second key, and relocking them in position in the lock cylinder.

The upper and lower shear cylinders 76, 74 are locked in position relative to the outer and inner cylinders 12, 14, respectively, by the engagement of a locking pins 140, 142 with the upper and lower locking racks 18, as illustrated in Figure 3. In order to rekey the present invention, the shear cylinders 76, 74 are unlocked by disengaging the locking pins 140, 142 from their respective racks 18, as illustrated in Figure 8, by the movement of cams 156, 176, respectively. Simultaneously with unlocking the upper and lower shear cylinders, the pins are locked to their respective

shear cylinders in position to form a shear zone between the pins and shear cylinders. When the new key is inserted, the shear cylinders and pins are moved up or down together to match the bitting on the new key while maintaining the shear zone between them. With the new key in the lock, camming action engages the locking pins with their respective racks, locking the shear cylinders in position relative to the lock cylinders, and releasing the pins for movement inside the shear cylinders, as illustrated in Figure 9. When the new key is removed, the pins move downwardly, as viewed in Figure 3, such that at least one of the upper pins penetrates the shear zone, preventing rotation of the inner cylinder relative to the outer cylinder, thereby locking the lock.

In view of the foregoing, it is clear that merely replacing components will not rekey the claimed lock. There are several necessary steps involved in rekeying the present invention that cannot be accomplished by merely replacing components, as suggested in the Restriction Requirement. Therefore, Applicant submits that the product cannot be used in a materially different process of using the product, such as rekeying the lock cylinder by removing the cylinder and replacing its components. Accordingly, Applicant respectfully requests rejoinder of the claims of Group I.

The specification is objected to for five informalities. The first two and fifth informalities listed in the Office Action have been corrected, and Applicant respectfully requests withdrawal of the related objections.

The third informality questions how surface 216 can contact surface 70 as seen in Figure 3, yet allow the key to engage the bottom of the pins as seen in Figure 2. Figure 3 is being amended to redirect the leader line from numeral 70, thereby obviating the objection, and Applicant respectfully requests withdrawal of the related objection.

In the fourth informality, the examiner wants “160” to read “80” in paragraph [0049]. There are two “upper springs” in the disclosure. Upper spring 80 relates to the spring immediately above the upper pin (paragraph [0029]), as seen in Figure 3,

whereas upper spring 160 is associated with the cam 156 and actuation pin 158 (paragraph [0039]). Accordingly, Applicant respectfully requests withdrawal of the related objection.

Claims 27 and 29 are objected to for two informalities, which have been corrected. Accordingly, Applicant respectfully requests withdrawal of the objection.

In view of the above amendments and comments, Applicant submits that the application is in condition for allowance and such action is respectfully requested.

Respectfully submitted,



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AMENDED PARAGRAPHS WITHOUT MARKUPS

[0023] With reference to the figures, a variable shear line lock cylinder 10 is provided and includes an outer cylinder 12, an inner cylinder 14, a plurality of pin assemblies 16, a lock assembly 18, and actuation mechanism 20. The outer cylinder 12 rotatably receives the inner cylinder 14 while the pin assemblies 16 are disposed therebetween. The pin assemblies 16 are operable to selectively prevent rotation of the inner cylinder 14 relative to the outer cylinder 12 and are positionable relative to the inner and outer cylinders 14-12 through engagement with the lock assembly 18. In addition, the actuation mechanism 20 interacts with the pin assemblies 16 and is operable to allow rotation of the inner cylinder 14 relative to the outer cylinder 12, as will be discussed further below.

[0040] The upper actuation pin 158 includes a generally L-shape having a first leg 172 slidably received by the actuation bore 98 of the upper shear cylinder 72 and a second leg 174 formed generally perpendicular to the first leg 172. The second leg 174 includes a reaction surface 176, whereby the reaction surface 176 abuts the pin engagement surface 168 of the cam 156, as best shown in FIG. 4. The overall length of the reaction surface 176 is governed by the overall length of the upper lock rack 136 to ensure that the reaction surface 176 maintains constant engagement with the pin engagement surface 168 of the cam 156 as the upper shear cylinder 72 is moved relative to the upper lock rack 136 through the plurality of locking recesses 144.

[0049] Once the upper spring 160 is sufficiently compressed, the first leg 172 of the actuation pin 158 will translate within the actuation bore 98 of the upper shear cylinder 72 and engage the engagement bore 106 of the upper pin 76. In this regard, the upper pin 76 is locked in a fixed position relative to the upper shear cylinder 72 to prevent the upper spring 160 from biasing the upper pin 76 out of engagement with the upper shear cylinder 72. As can be appreciated, without the

lower pin 78 to hold the upper pin 76 within the upper shear cylinder 72, the upper spring 160 would cause the upper pin 76 to be released from the upper shear cylinder 72 at the open end 94.

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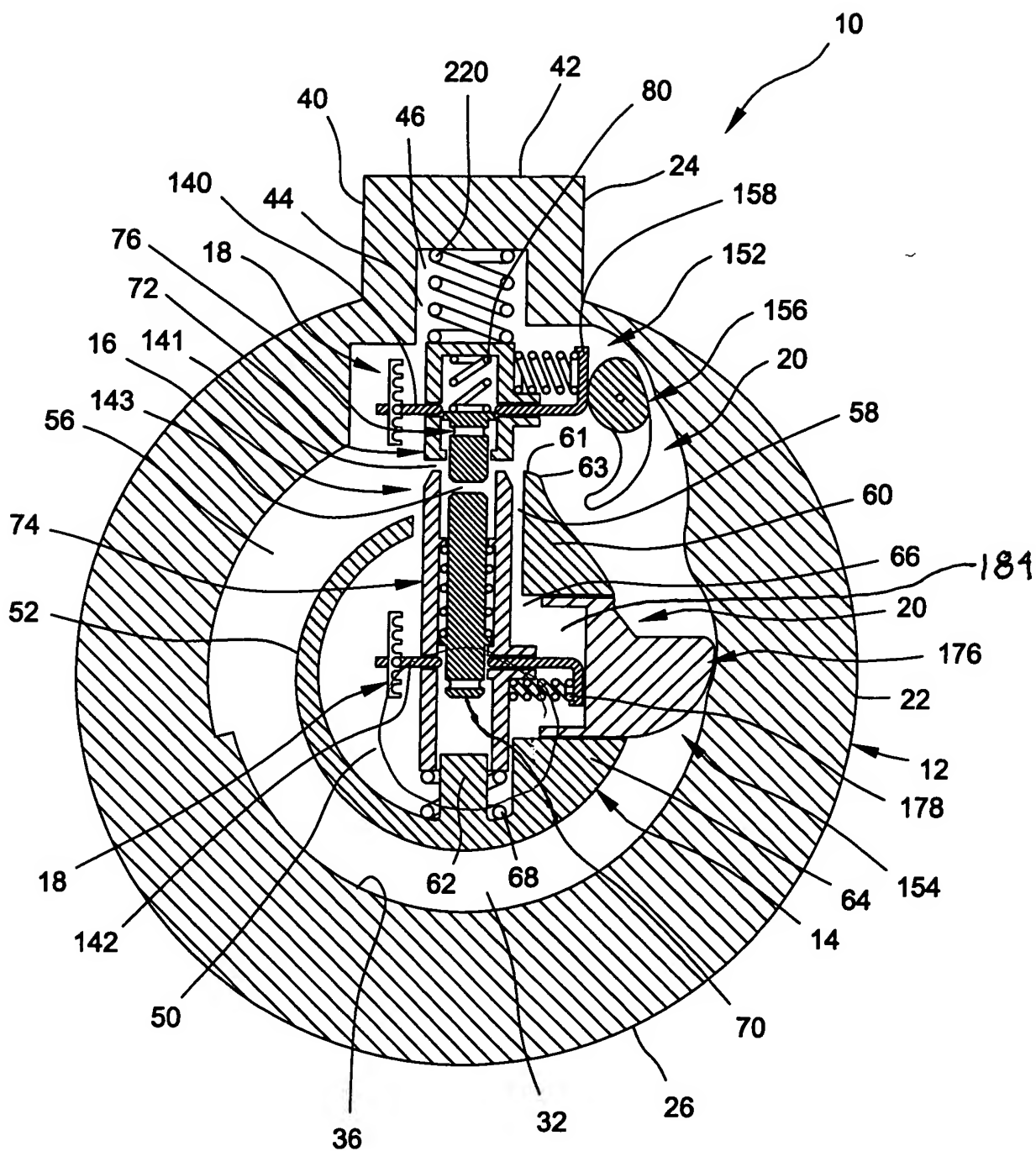


FIG 3